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In response to letter title "immediate hemodynamic and gaseous exchange effect of bi-level positive airway pressure after cardiac surgery: Our insight to Hamid et al.'s study"

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In Response to Letter Title “Immediate Hemodynamic and Gaseous Exchange Effect of Bi-Level Positive Airway Pressure after Cardiac Surgery: Our Insight to Hamid *et al.*’s Study”

The Editor,

Thank you for the opportunity to respond to the letter by Karim *et al.*,^[1] in reference to our study.^[2] The authors in this letter have expressed few concerns regarding our study and I would like to respond in the same sequence.

First critique is that we only used Bilevel Positive Airway Pressure (BiPAP) in nonhypercapnoeic patients. It is erroneous, as we also included hypercapnoeic patients. In our study eight patients had PaCO₂ 50 mm Hg or greater. The mean value of 44 mm Hg in pre-BiPAP period probably gives a false impression that these patients were excluded.

About echocardiographic evaluation of cardiac function before and after applying a BiPAP, I think it is difficult as you know that once you decide about BiPAP application it should be done quickly to prevent decompensation. I was unable to find any study where ECHO was used in such situation. It is a good idea but may be impractical in this scenario. Hoffman *et al.*^[3] also used PA catheter readings for cardiac index and cardiac output rather than relying on echocardiography. Their study showed improved cardiac function after BiPAP and this effect was also present in our study. Another question regarding pulmonary HTN, we did not find pulmonary HTN in preoperative evaluation and second it would have made no difference as we compared the pre and post BiPAP hemodynamics.

Second, about comorbidities such as COPD and sleep apnea, we were unable to find COPD and sleep apnea complaints during preoperative evaluation. These questions were asked specifically and past medical record was checked for these conditions.

Regarding pain and sedative medications influencing parameters. During the short study period, no one was given sedatives or pain medications so I do not think it is an issue here. Generally, we avoid sedatives in all postoperative patients and even analgesics, which we use have minimal effect.

About the effect of BiPAP on reintubation rate, there are several studies mentioned that BiPAP application reduces reintubation rate in respiratory

failure patients.^[4,5] I agree with the authors that the prophylactic use of BiPAP is controversial. They mentioned Ağiroğlu G *et al.*^[6] study where BiPAP was used prophylactically in nonrespiratory distress patients. It was used twice for 20 min with 3 h interval while we used different criteria for included patients and duration of application was different as well. We firmly believe that BiPAP application does help the patient in respiratory distress after cardiac surgery and reduces reintubation rate.

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Conflicts of interest

There are no conflicts of interest.

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